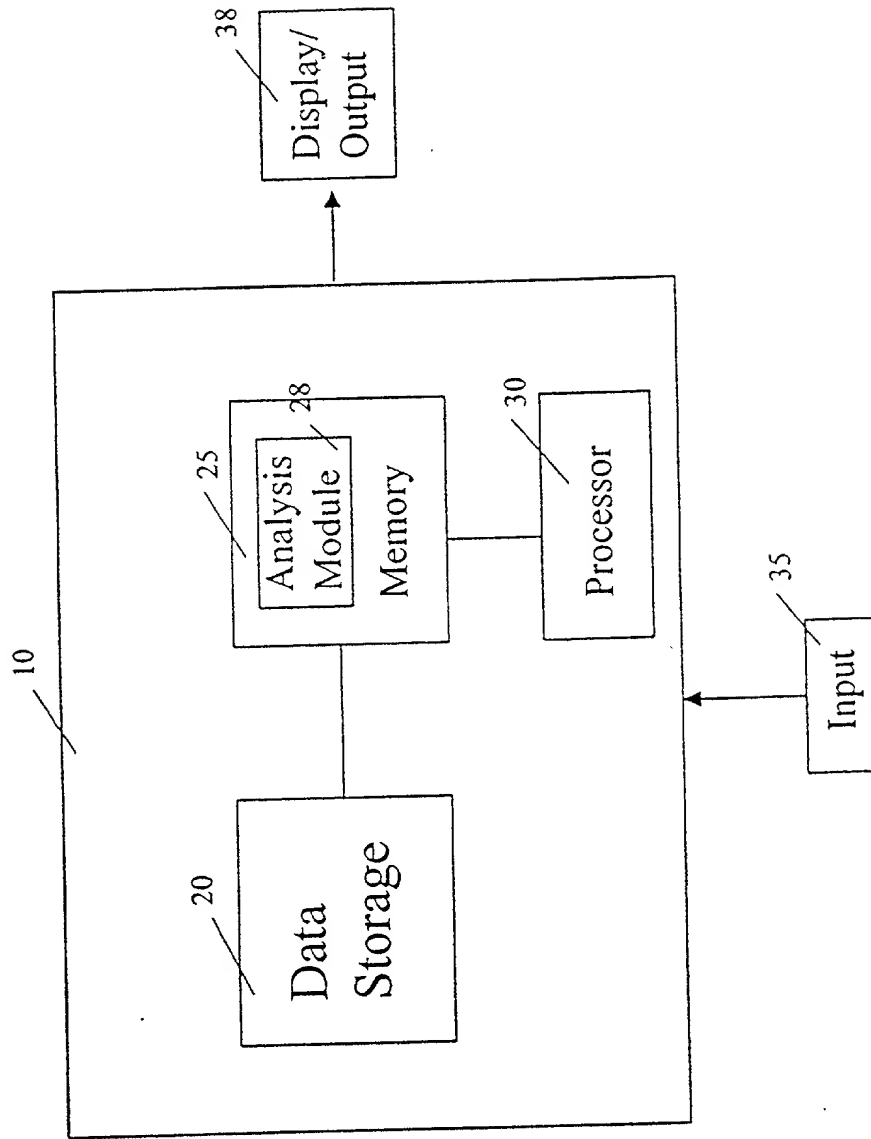


Figure 1

Figure 2



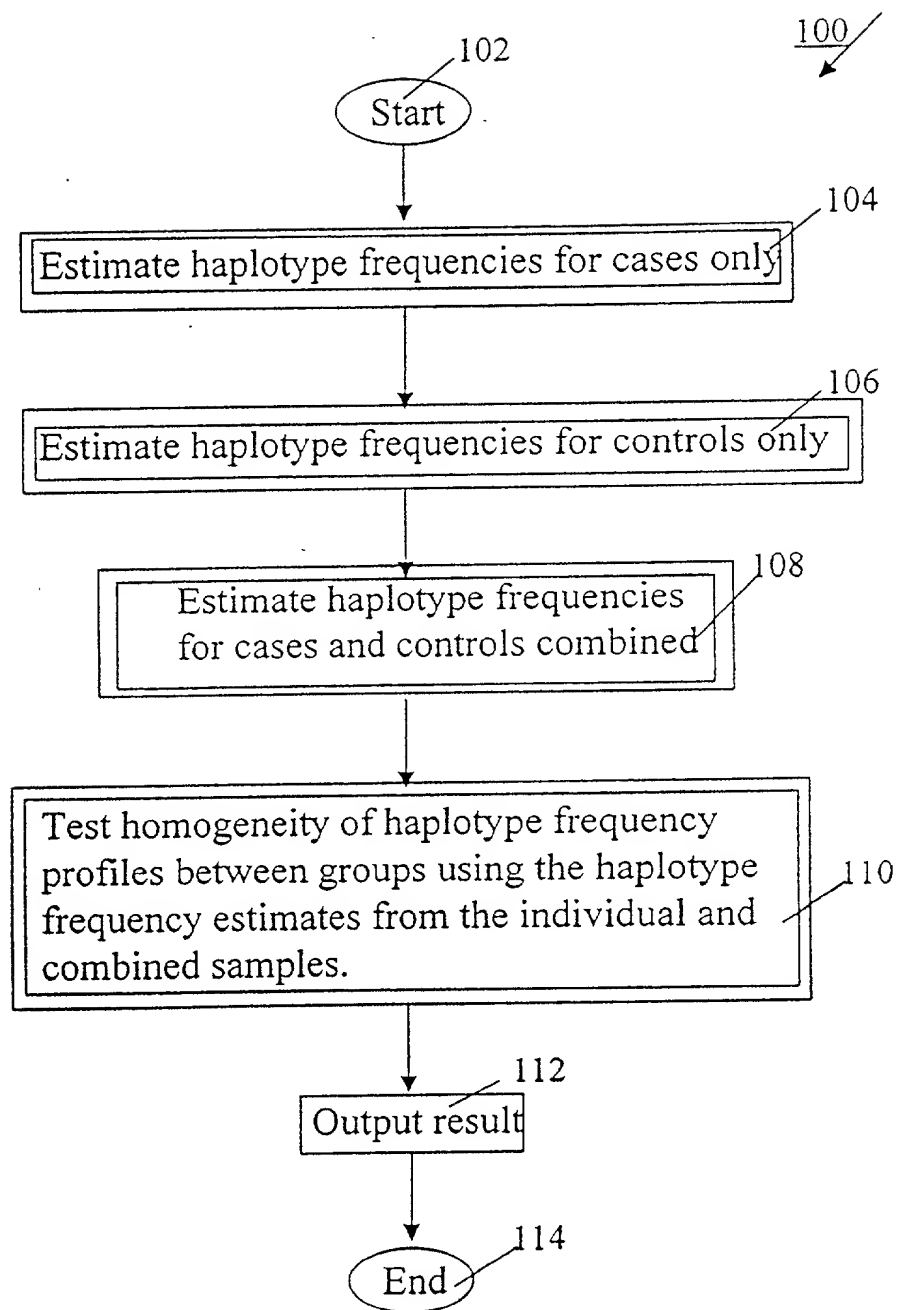


Figure 3

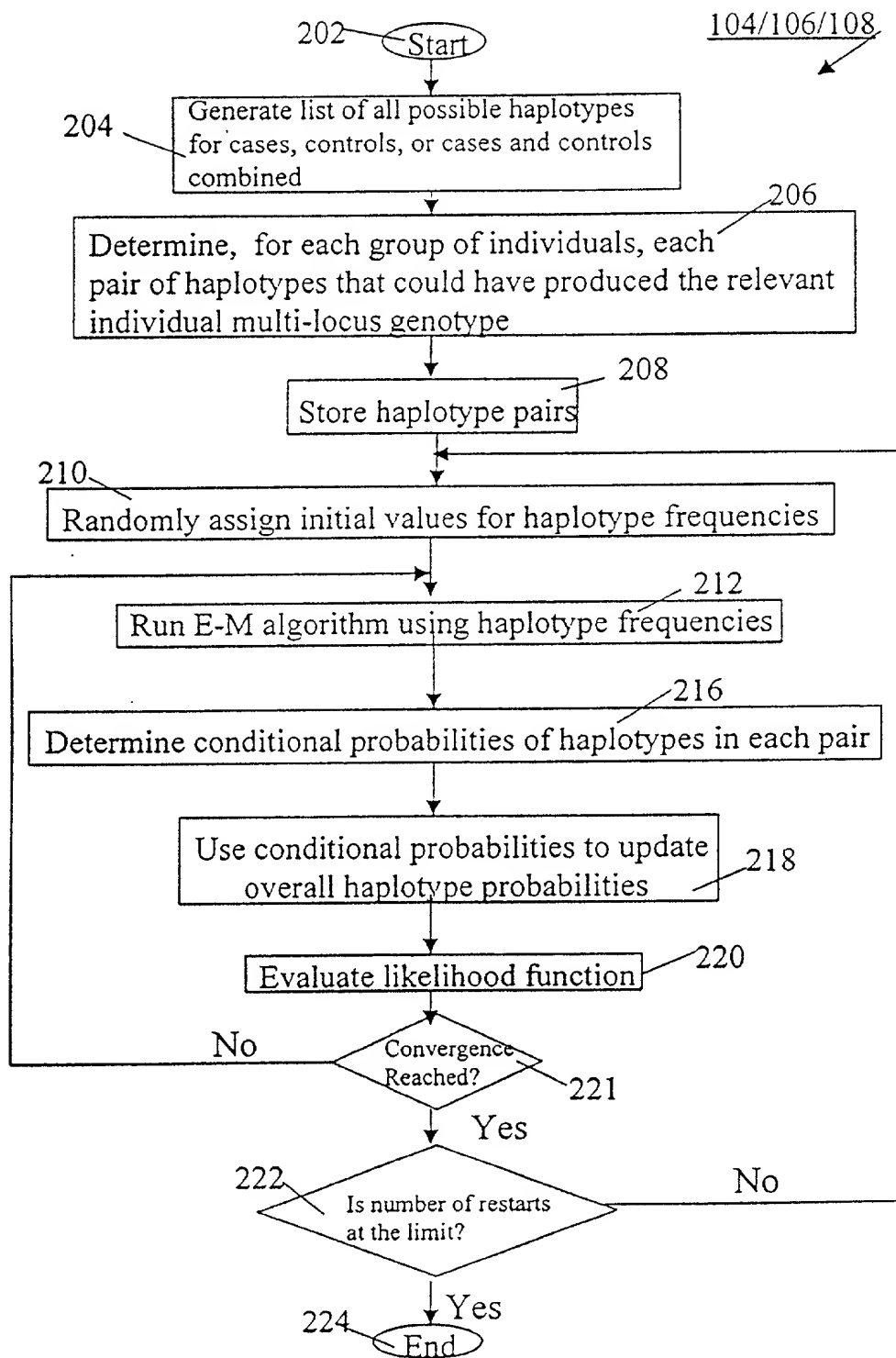


Figure 4

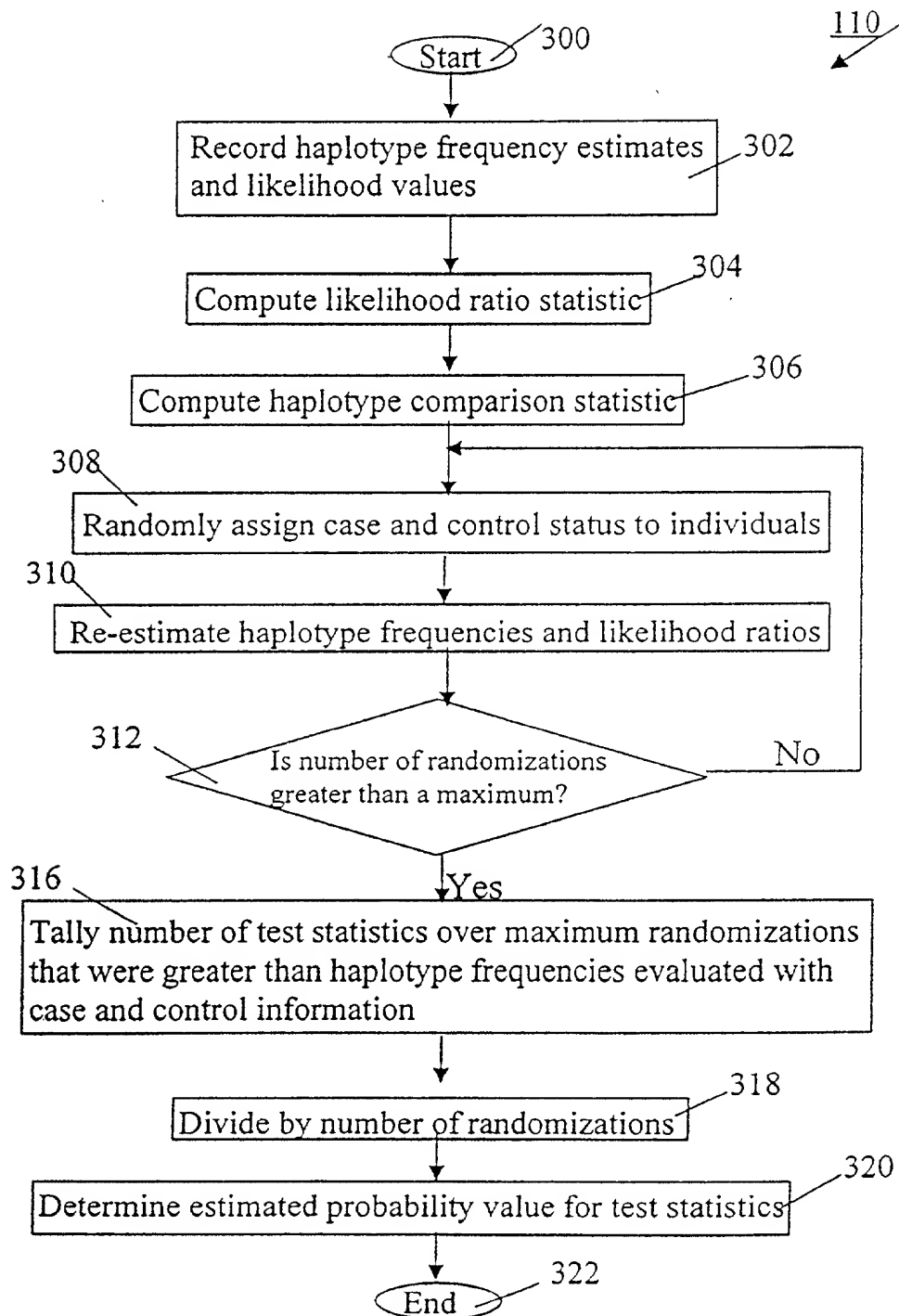


Figure 5

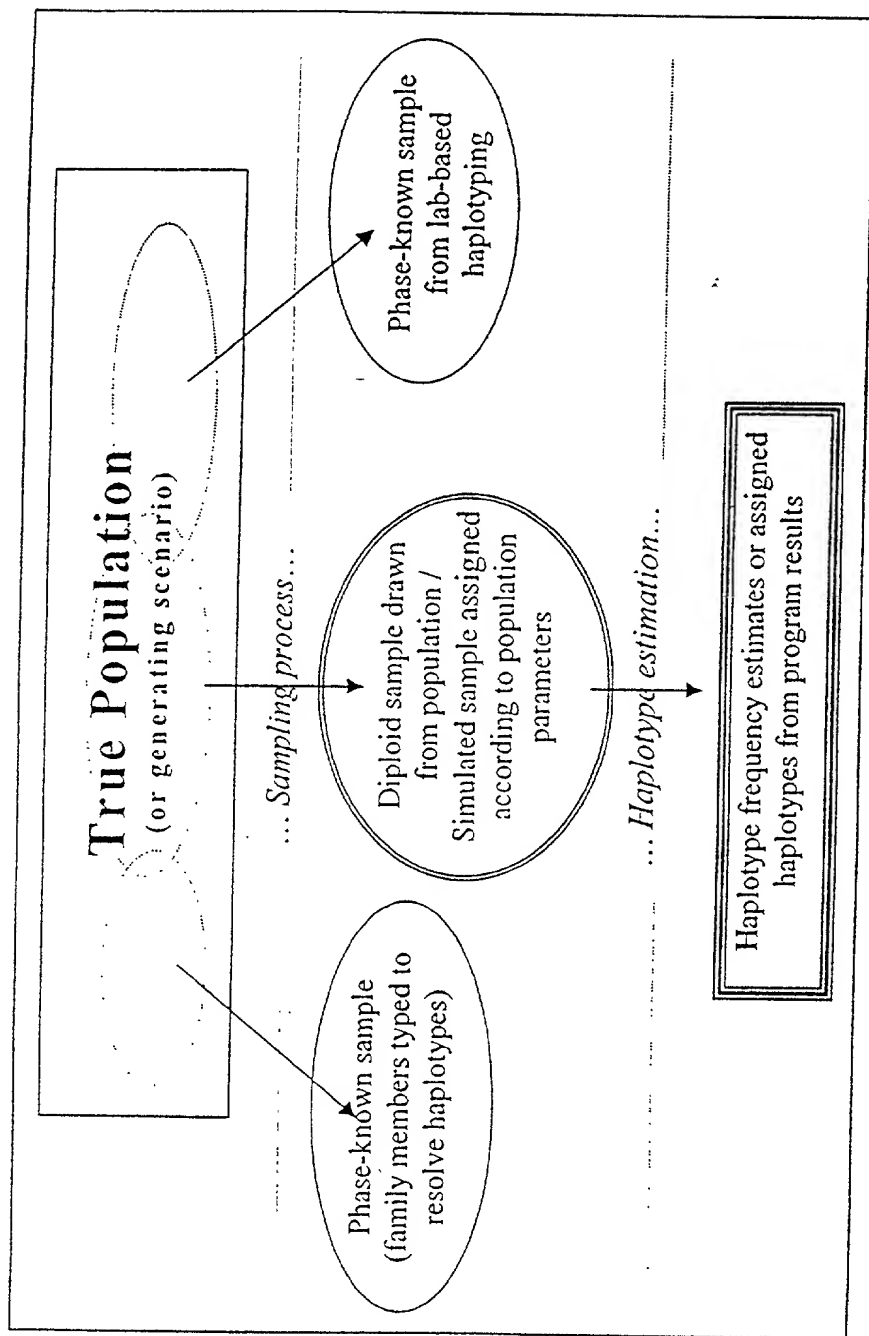


Figure 6

0912230 07164
T09T20" 0923T060

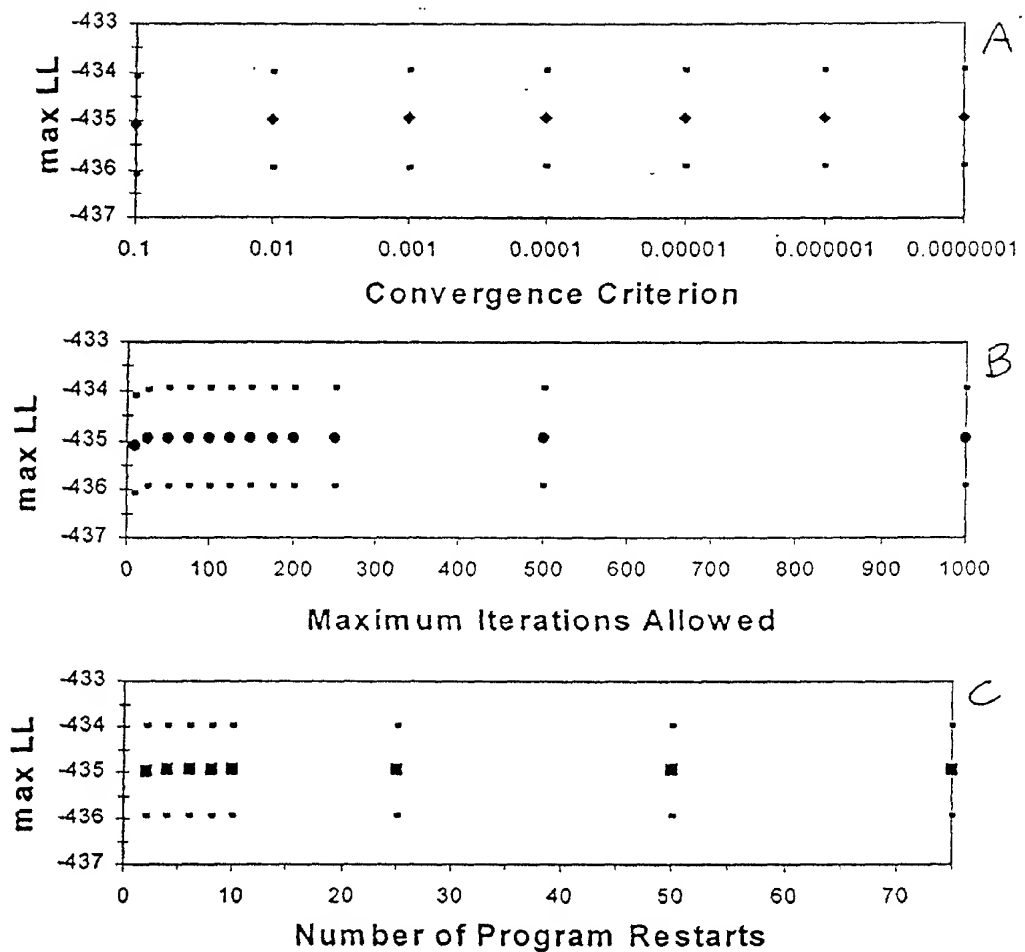


Figure 7

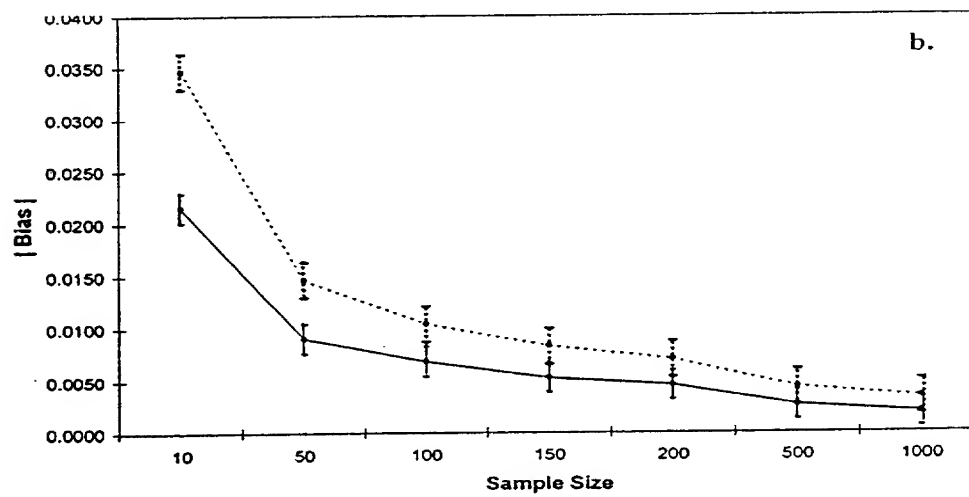
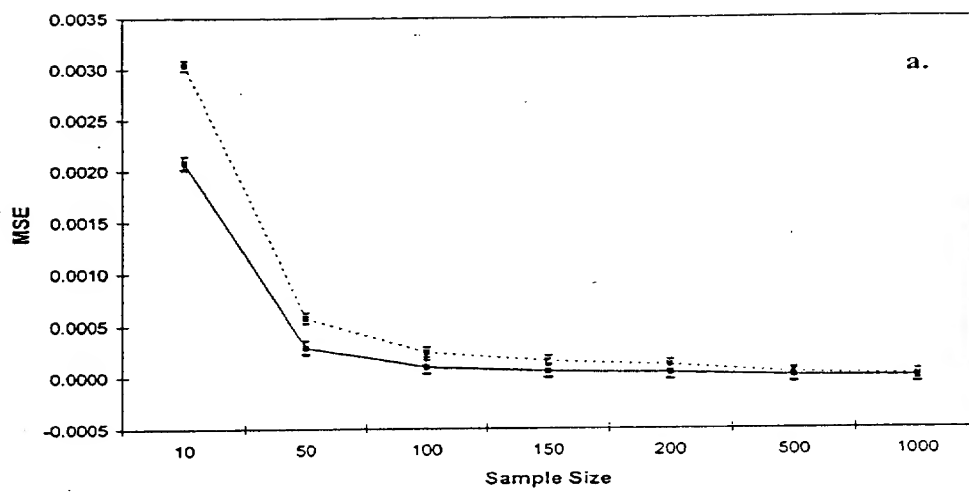


Figure 8

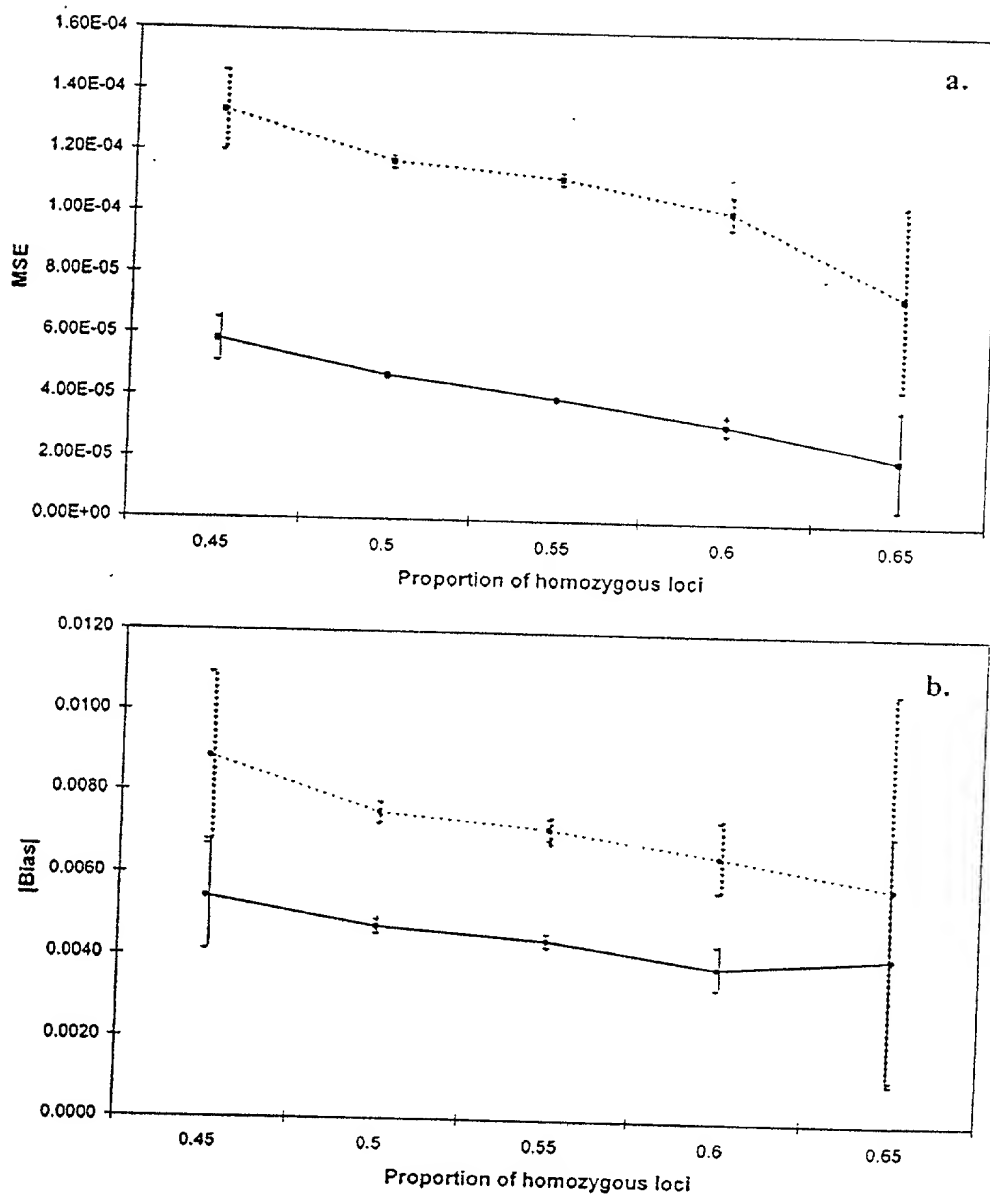


Figure 9

09221350

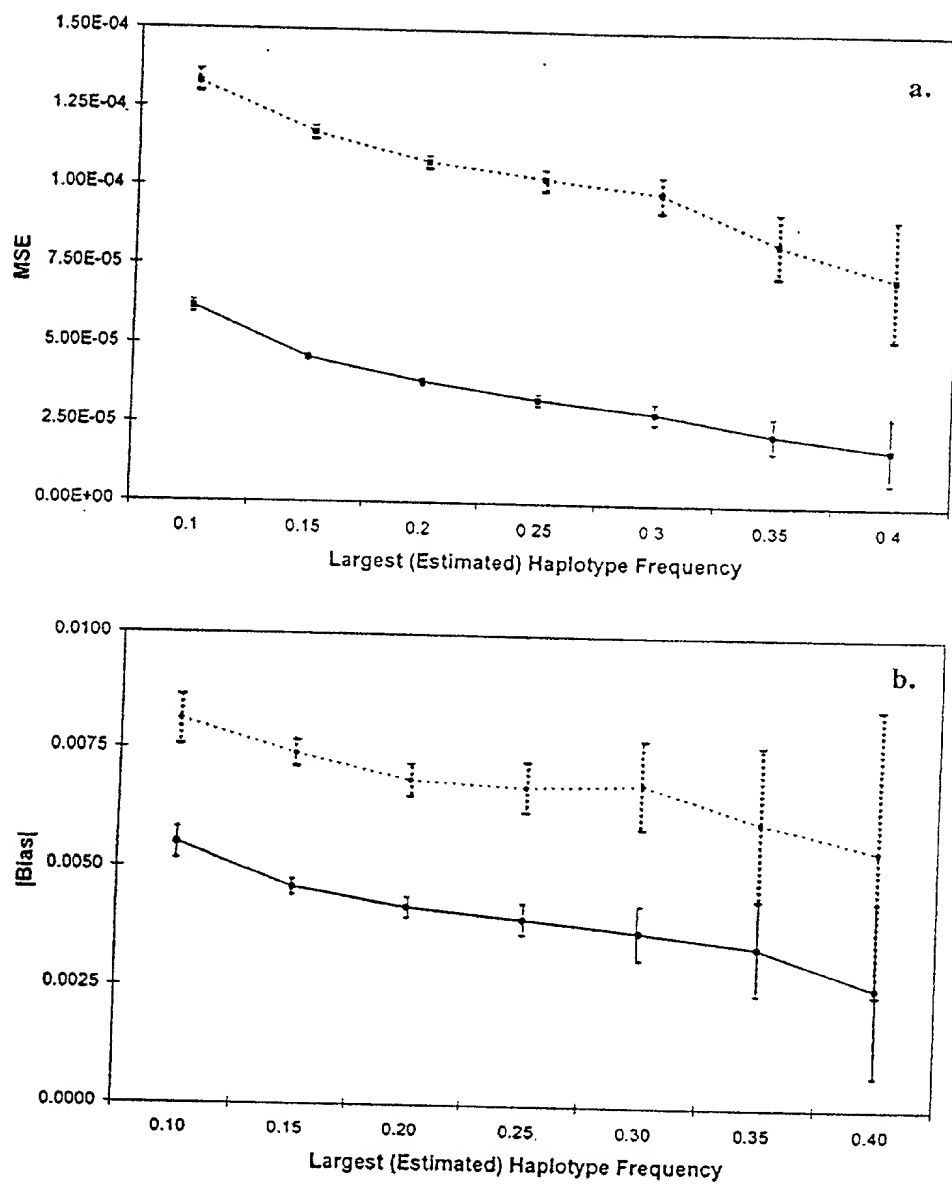


Figure 10

10/17

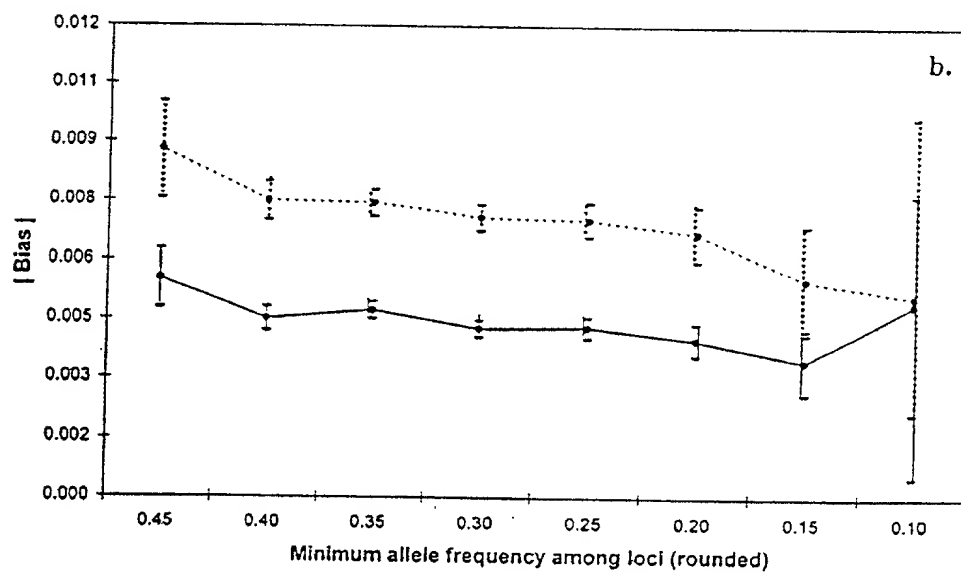
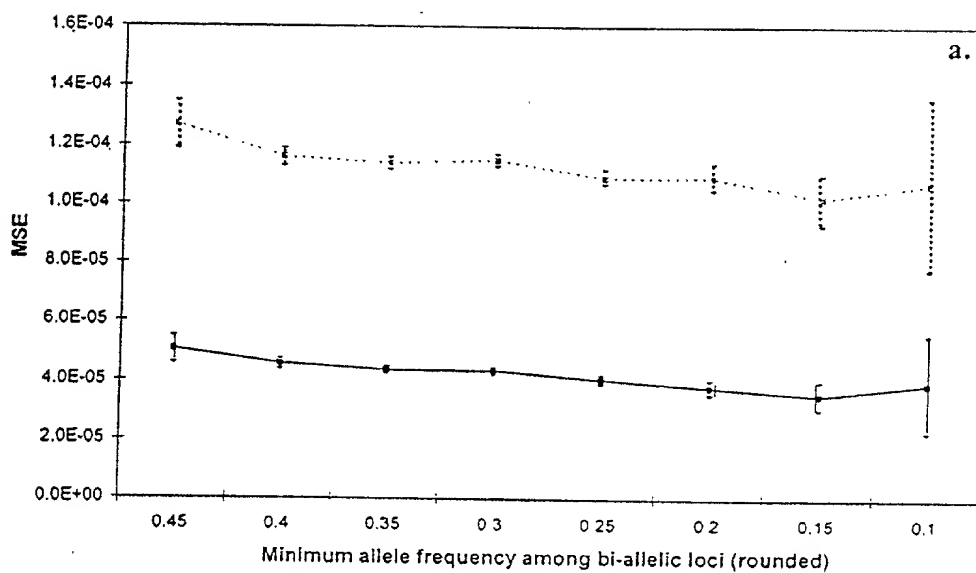


Figure 11

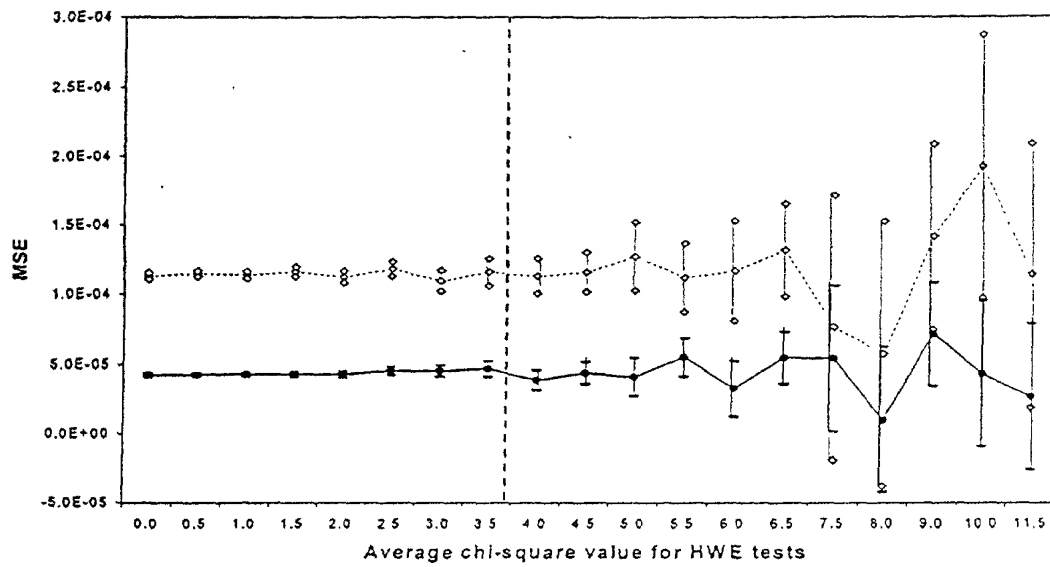


Figure 12

12/17

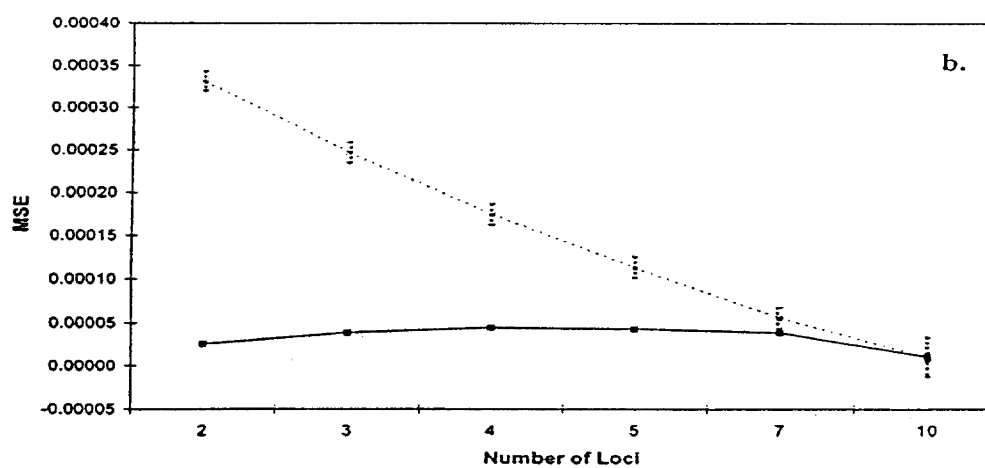
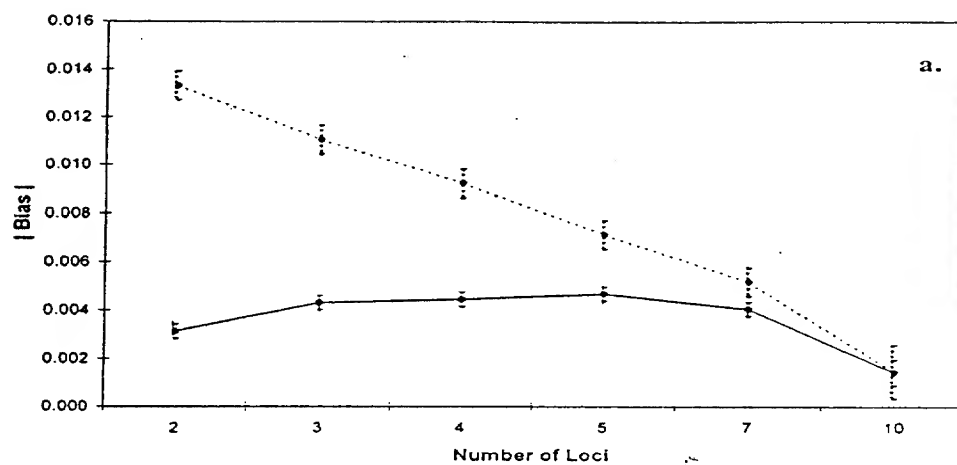


Figure 13

Table. Regression of absolute value of bias between estimated and generating haplotype frequencies on all factors.

Regression including all factors					Single-factor models		
Variable	Estimate	Std. Error	T test	Prob > T	R ²	F	Prob>F
2-locus Haplotypes:							
INTERCEP	0.031017	0.00220248	14.083	0.0001	0.0383	395.1818	0.0001
Prop HOMOZ	-0.029256	0.00369778	-7.912	0.0001	0.0468	487.0159	0.0001
Freq largest Hap.	-0.00238	0.00258249	-0.922	0.3568	0.0085	84.85	0.0001
Chi-sq for LD	-3.0429E-05	0.00000383	-7.944	0.0001	0.0004	4.0044	0.0454
H-W status	-0.000878	0.00080228	-1.094	0.274	0.0337	345.6019	0.0001
Avg. Min Allele freq.	0.008471	0.00478999	1.769	0.077			
5-locus haplotypes:							
INTERCEP	0.058585	0.00499106	11.738	0.0001	0.0027	9.7079	0.0018
PropHOMOZ	-0.004128	0.0033604	-1.229	0.2193	0.0085	30.2177	0.0001
Freq largest Hap.	-0.007354	0.00163342	-4.502	0.0001	0.0452	166.6065	0.0001
Avg D' for pairwise LD matrix	0.013172	0.00102619	12.836	0.0001	0.0002	0.8555	0.3551
H-W status	-0.00155	0.00139011	-1.115	0.265	0.0001	0.3553	0.5512
Avg. Min Allele freq.	-8.5172E-05	0.00038764	-0.22	0.8261			

Figure 14

Table. Haplotype Frequency Estimates and Significance Levels of Case-control Comparison from Permutation Tests

Chromosome 19 APOE Gene Region:									
Configuration 1									
<div> <div> M1 M2 M3 M4* M5 M6 M7 M8</div> <div> <div>↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓</div> <div>* part of <i>ε4</i> allele determination</div> </div> </div>									
(APOEεSNP included in haplotypes)									
Haplotype	Overall	Case	Control	χ^2	P value*	Configuration 2:			
						<div> <div>M1 M2 M3 M4* M5 M6 M7 M8</div> <div> <div>↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓</div> <div>* part of <i>ε4</i> allele determination</div> </div> </div>			
						(Loci included flank the APOEε4 SNP)			
Haplotype	Overall	Case	Control	χ^2	P value*	Haplotype	Overall	Case	Control
TCCA	0.007	0.012	0.000	1.83	0.243	TACA	0.207	0.192	0.220
CCCC	0.013	0.022	0.000	3.34	0.025	CACA	0.057	0.050	0.069
TTCA	0.009	0.009	0.007	0.04	0.864	TGCA	0.015	0.003	0.034
CTCA	0.031	0.049	0.000	7.41	0.014	CGCA	0.166	0.190	0.132
TCTA	0.224	0.197	0.258	1.81	0.072	TATA	0.021	0.019	0.023
CCTA	0.198	0.189	0.219	0.47	0.285	CATA	0.005	0.009	0.004
TTTA	0.000	0.000	0.000	0.00	0.116	TGTA	0.000	0.000	0.000
CTTA	0.004	0.006	0.002	0.26	0.837	CGTA	0.008	0.009	0.008
TCCG	0.002	0.003	0.000	0.44	0.664	TACG	0.232	0.262	0.195
CCCG	0.002	0.004	0.000	0.64	0.562	CACG	0.066	0.049	0.092
TTCG	0.088	0.115	0.056	3.56	0.023	TGCG	0.013	0.000	0.032
CTCG	0.079	0.110	0.042	5.22	0.023	CGCG	0.176	0.189	0.152
TCTG	0.138	0.124	0.159	0.85	0.276	TATG	0.000	0.000	0.000
CCTG	0.180	0.135	0.228	5.01	0.008	CATG	0.018	0.014	0.022
TTTG	0.017	0.014	0.017	0.04	0.78	TGTG	0.000	0.000	0.000
CTTG	0.010	0.010	0.012	0.04	0.846	CGTG	0.016	0.015	0.018
Likelihoods:	-1117.2	-668.7	-416.9	63.12**	0.0001		-1149.7	-621.6	-511.5
									33.34**
									0.0041
Other Haplotype Configurations and Significance Levels									
Chromosome 19 region									
Configuration 3:	M1 M2 M3 M4* M5 M6 M7 M8	Haplotypes contain 4 locus			LRT **	P value*			
Configuration 4:	M1 M2 M3 M4* M5 M6 M7 M8	"			93.66	0.0001			
Configuration 5:	M1 M2 M3 M4* M5 M6 M7 M8	Haplotypes flank 4 locus			57.39	0.0001			
Configuration 6:	M1 M2 M3 M4* M5 M6 M7 M8	Haplotypes do not contain or flank 4 locus			45.64	0.0001			
Configuration 7:	M1 M2 M3 M4 M5	Haplotypes in 'control' region			13.48	0.2401			
Configuration 8:	M1 M2 M3 M4 M5	"			17.29	0.0940			
					6.49	0.4930			

* P values based on 10000 permutations

** Likelihood ratio test statistic values for omnibus test

Figure 15

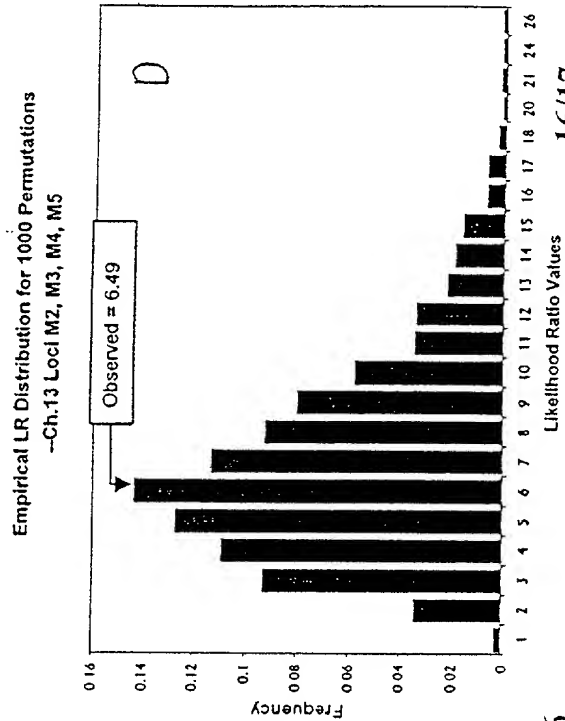
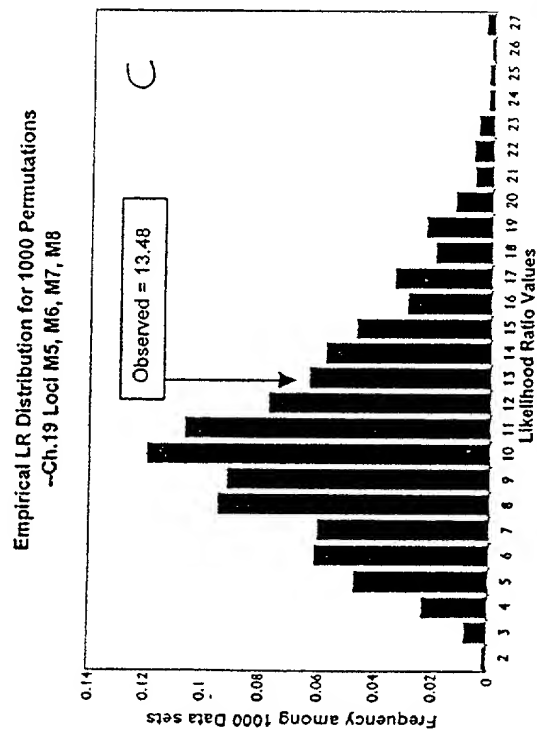
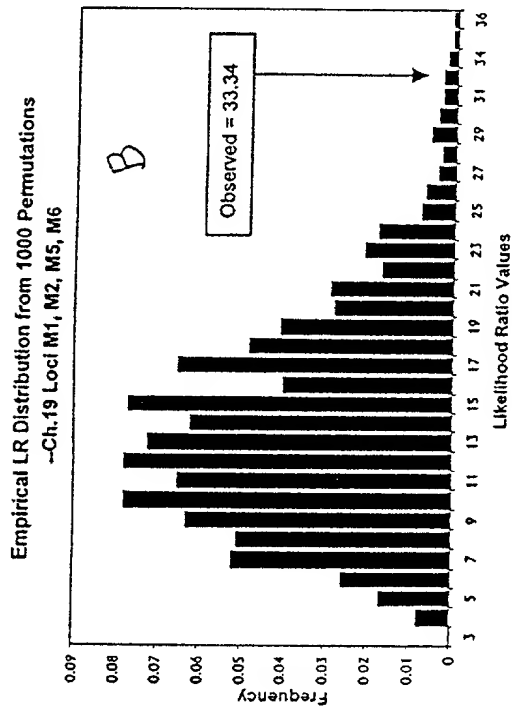
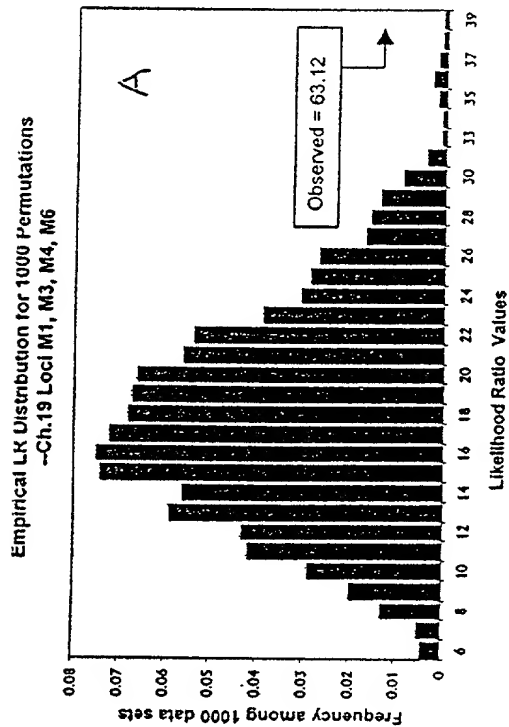


Figure 16

Haplotype Estimation Results:

Hap No.	Haplotype	MLOCUS CEPHGP	SCHORK CEPHGP	PEDIGREE CEPHGP	MLOCUS BRCAtotal	SCHORK BRCAtotal	MLOCUS BRCAcase	SCHORK BRCAcase	MLOCUS BRCAcon	SCHORK BRCAcon
1	1111111	0.29210	0.29208	0.28280	0.21030	0.21687	0.23710	0.24214	0.20470	0.20564
2	1122111	0.20090	0.20085	0.20200	0.02750	0.01921	0.02510	0.02215	0.02700	0.01695
3	1222111	0.17790	0.17793	0.17680	0.14840	0.14497	0.21270	0.20714	0.10000	0.10101
4	1212111	0.11110	0.11111	0.10610	0.21090	0.21302	0.20120	0.18571	0.21360	0.22727
5	2111121	0.09290	0.09293	0.10100	0.16570	0.16256	0.15240	0.16429	0.16630	0.15626
6	1111112	0.08590	0.08586	0.09090	0.01560	0.01479	0.00000	0.00000	0.01820	0.02020
7	1211111	0.01400	0.01399	0.01520	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
8	1111121	0.02220	0.02222	0.02520	0.00560	0.00636	0.00000	0.00000	0.00000	0.01123
9	2111121	0.00300	0.00303	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
10	1122111	0.00000	0.00000	0.00000	0.18230	0.19231	0.14630	0.15714	0.20910	0.22042
11	1111211	0.00000	0.00000	0.00000	0.01870	0.01686	0.00000	0.00000	0.02630	0.02344
12	2111111	0.00000	0.00000	0.00000	0.00610	0.00608	0.00000	0.00000	0.01120	0.01041
13	2111212	0.00000	0.00000	0.00000	0.00000	0.00000	0.01220	0.00714	0.00000	0.00000
14	1211121	0.00000	0.00000	0.00000	0.00000	0.00000	0.00680	0.00786	0.00000	0.00000
15	1222211	0.00000	0.00000	0.00000	0.00000	0.00000	0.00610	0.00642	0.00000	0.00000
16	1122211	0.00000	0.00000	0.00000	0.00120	0.00150	0.00000	0.00000	0.00480	0.00000
17	1111121	0.00000	0.00000	0.00000	0.00250	0.00252	0.00000	0.00000	0.00420	0.00392
18	2112111	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00330	0.00000
19	2112121	0.00000	0.00000	0.00000	0.00260	0.00000	0.00000	0.00000	0.00130	0.00000
20	1122121	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
21	1212112	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
22	1121211	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
23	2111221	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
24?	1221221	0.00000	0.00000	0.00000	0.00260	0.00296	0.00000	0.00000	0.00000	0.00000
25	1111221	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00325
		1.00000	1.00000	1.00000	1.00000	1.00001	0.99990	0.99999	1.00000	1.00000

Figure 17